ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency	)	RM-8143
Calling Systems	)	
	)	
Request of AirTouch Communications, Inc.	)	
for Waiver of Section 20.18(c) of the	)	
Commission's Rules	)	
	)	

REQUEST OF AIRTOUCH COMMUNICATIONS, INC. FOR WAVIER OF SECTION 20.18(c) OF THE COMMISSION'S RULES

Pursuant to the Commission's Order of November 13, 1998 ("Waiver Order"),[1] AirTouch Communications, Inc. ("AirTouch") hereby requests a waiver of Section 20.18(c) of the Commission's rules. AirTouch is a CMRS provider with interests in cellular, paging, PCS and mobile satellite services, both domestic and international.[2]

INTRODUCTION

Section 20.18(c) of the Commission's rules requires CMRS carriers to "be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, *e.g.*, through the use of Text Telephone

[1] *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102 (rel. Nov. 13, 1998) ("Waiver Order") at ¶¶ 7-12.

[2] AirTouch files this request for waiver on behalf of its licensees listed in Exhibit A.

Devices."[3] The Commission has interpreted this requirement to apply to both digital and analog transmission of 911 calls through TTY devices.[4] The Commission recognized, however, that substantial technical work was required to implement TTY compatibility for digital wireless systems.[5] As a result, enforcement of the TTY compatibility requirement as it applies to digital transmissions was stayed first until October 1, 1998,[6] then until November 15, 1998,[7] and most recently until December 31, 1998.[8] Although the wireless industry (carriers and manufacturers) along with TTY equipment manufacturers, emergency and relay service providers and consumer organizations have expended substantial time and resources investigating the feasibility of providing TTY compatibility for digital wireless networks, no solution has been reached to date. As set forth in the Waiver Order, AirTouch will supply detailed updates of its progress and milestones in quarterly reports going forward.

AirTouch applauds the Commission's efforts to ensure that 911 services are available to all Americans. The Commission, however, should not lose sight of the fact that 911 services are currently available to all wireless users, including TTY users,

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[3] 47 C.F.R. § 20.18(c).

[4] *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems,* Memorandum Opinion and Order, 12 FCC Rcd 22665, at ¶ 58 (1997).

[5] *Id.* at ¶ 55.

[6] *Id.* at ¶ 59.

[7] *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems,* Order, at ¶ 12 (rel. Sept. 30, 1998).

[8] Waiver Order at ¶ 14.

through analog service. As discussed below, despite the best efforts of interested stakeholders, digital TTY compatibility cannot be a reality in the near future. Numerous and complex technological hurdles must be overcome before TTY signals can be transmitted digitally. While industry experts explore ways to surmount such hurdles, however, TTY users have a reliable and ubiquitous wireless option – analog service. To be sure, AirTouch will continue to support the efforts of its vendors and the industry in forging a digital TTY solution. Until that solution is technologically and economically feasible, AirTouch believes that the provision of TTY services via its analog network should sufficiently ensure that Americans with hearing and speech disabilities have access to wireless 911 services.[9]

Below, AirTouch addresses the three factors for waiver enumerated by the Commission in its Waiver Order.

I. What steps is the carrier taking or does the carrier intend to take to provide users of TTY devices with the capability to operate such devices in conjunction with digital wireless phones?

As set forth in more detail below, AirTouch is (1) actively participating in the TTY Forum conducting and analyzing tests for each of the four digital technologies; (2) working with its vendors to identify needed network and handset features and upgrades required for digital transmission; (3) trialing a partially capable digital data service in its Michigan market in first half 1999; (4) and exploring a promising new receiver/repeater

[9] Because AirTouch's cellular networks offer analog services where ever AirTouch offers digital services, and analog handsets can generally work with TTY devices, AirTouch may properly be viewed as already being in compliance with Section 20.18(c).

function that Lucent indicates may reduce character error rate to well under 1%.

Technological difficulties facing CDMA operators. No digital technology – CDMA, TDMA, GSM or iDEN – is currently compatible with existing TTY devices. Each technology faces individual difficulties in implementing a digital TTY compatible solution. As an operator employing CDMA technology, AirTouch has been well-informed by its vendors regarding the difficulties associated with transmitting TTY signals over a CDMA air interface.[10]

It is AirTouch's understanding that the problems with digital TTY transmissions are inherent to CDMA technology itself and thus there are neither ready nor easy solutions.[11] In brief, CDMA technology is designed to accommodate a frame erasure rate ("FER") of 1%. Although this FER is constantly occurring in the network, CDMA vocoders are correspondingly designed to compensate for these errors for human speech patterns and tones. Slower and longer TTY signals, however, are substantially different from voice signals. As a result, the acceptable 1% FER for voice translates to an unacceptable 7-9% (or more) character error rate for TTY signals.

TTY Forum Workplan. The TTY Forum[12] recently submitted a workplan to the

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[10] *See, e.g.,* Letter from John Williams, AirTouch Global Account Group, Nortel, to Mike Polosky, Executive Vice President, AirTouch Cellular, dated Nov. 25, 1998 (Attached at Exhibit B).

[11] *See, e.g. id. See also* Wireless TTY Forum Quarterly Status Reports dated April 10, 1998, July 10, 1998 and October 13, 1998.

[12] The TTY forum is an organization consisting of wireless carriers and equipment manufacturers, manufacturers of TTY equipment, emergency and relay service providers and consumer organizations representing individuals who are deaf or hard-of-hearing.

FCC explaining the intensive collaborative efforts interested stakeholders' have undertaken to provide TTY access over digital wireless systems. The workplan covers the spectrum of digital technologies and provides substantial detail regarding the range of solutions available and the specific solutions that are being pursued by the TTY Forum. As a participant in the TTY Forum individually and through membership in the CDMA Development Group ("CDG"), AirTouch has looked to the TTY Forum, in large part, to provide the collective industry expertise on the complex issue of digital TTY compatibility. While the TTY Forum has made progress on this issue, at the same time, that progress has revealed that much work remains to be done.

At the FCC's request, the TTY Forum developed a standard test procedure to compare character error rates across the four wireless digital technologies as part of its overall workplan. The test plan for each individual technology is currently being finalized and the TTY Forum plans to review and analyze these test results and provide specific comments and recommendations by January 1999. Until these test have been completed and the results reviewed and analyzed, any decision as to the appropriate path forward for TTY compatibility implementation would be premature. AirTouch must await the TTY Forum's test results and undertake an internal analysis of the results before finalizing an implementation strategy. AirTouch will promptly inform the Commission of the results of its internal analysis as part of the quarterly reports required by the Waiver Order.

Alternative solutions in the CDMA environment. In the interim, however, AirTouch, in conjunction with its vendors, has been investigating and evaluating the two

solutions for CDMA technology that have been proposed to the TTY Forum – Qualcomm's data-based solution and Lucent/Philips' receiver/repeater approach. In addition, AirTouch has asked its major vendors to provide it with information regarding the availability of network features and functions that will allow digital transmission of TTY signals.[13]

Under the proposed data-based approach, TTY tones would be converted to digital data, transmitted as data over the CDMA air interface, and then converted back to analog to be transmitted by the public switched telephone network ("PSTN"). Because the Baudot tones would be converted to ASCII data before they are transmitted through the network, the data-based approach produces very low character error rates (well under the requested 1% error rate currently experienced in analog operations). Implementation of the data-based approach requires the availability of three distinct pieces of equipment – a CDMA handset with data capability, an intelligent interface device connecting the handset to the TTY device, and an interworking facility ("IWF") with V.18 modem capability.

First, the data-based solution requires a handset that supports digital data. Over the course of this year, AirTouch has been working with its vendors – Qualcomm, Motorola, Nokia, Audiovox, LGIC, Sony and Samsung – to implement data capability in their CDMA handsets. AirTouch has participated in a number of tests for data capability in Qualcomm's handsets and expects to receive data-ready handsets from Qualcomm during the first half of 1999. Most of AirTouch's remaining CDMA handset vendors

[13] *See* letters to 3Com, Lucent, Motorola and Nortel attached at Exhibit C.

intend to incorporate digital data into their handsets during the second half of 1999.

Second, the data-based solution requires an intelligent interface between the handset and the TTY device. Not only will this interface provide connectivity between the handset and the TTY device, it also will convert the Baudot tones generated by the TTY device into ASCII data. In addition, the interface will signal the handset to initiate a data (rather than a voice) session. AirTouch has been in discussions with a vendor, Sendele Wireless, during this Fall regarding the feasibility of developing the requisite intelligent interface. Sendele has expressed an interest in and the ability to develop such an intelligent interface by third quarter 1999.

Third, and by far the most extensive element of the data-based solution is the IWF. The IWF is essentially a modem pool that will permit the network to receive the TTY data signal and convert it to TTY tones to be transmitted over the PSTN to the landline TTY user. In the reverse direction, the IWF will convert the TTY tones received from the PSTN to data bits that can be sent to the digital mobile handset. In order to provide this functionality, some vendors will require installation of an IWF in each base station controller in the network, while other vendors will require IWF installation at the mobile switching center level of the network.

Existing IWFs do not contain the V.18 modem protocol that is required for TTY support. It is AirTouch's understanding that the single supplier of IWFs for CDMA networks, 3Com, does not currently have a commercially available IWF that includes this functionality. While AirTouch understands that 3Com is exploring ways to implement the V.18 modem protocol in its IWFs, it does not know the timing of such

implementation. Accordingly, AirTouch has sent a letter to 3Com, requesting that they confirm that existing IWFs do not support TTY and asking when such functionality might be made available.[14]

In addition, to the equipment required for implementation of the data-based solution, the implementation of digital data services in a network requires changes to a carrier's billing systems. Once a network is technically ready to accommodate data transmissions, billing systems must capable of reading, interpreting and rating those transmissions. If a billing system is not data-ready, the insertion of data transmissions over the network could incapacitate the billing system, even for voice calls.

AirTouch intends to install digital data capability, including the installation of IWFs, albeit without V.18 modem capability, in its Michigan market on a trial basis. This trial is scheduled to begin during the first half of 1999. Depending on the results of the trial, AirTouch will consider rolling-out digital data capability throughout the enterprise on a wider basis. At this time, however, the wide-spread introduction of data into AirTouch's network is highly uncertain. In addition, AirTouch is currently operating with three separate billings systems, none of which is fully capable of handling data calls. Accordingly, the viability of the data-based solution for TTY compatibility at AirTouch will depend in large measure on AirTouch's business plans for introducing data capability and modifying its networks and billing systems accordingly.

The second solution for CDMA technology that has been proposed to the TTY

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[14] *See* Letter from Michael J. Polosky, Executive Vice President, AirTouch Cellular, to Roger Manka, VP Carrier Sales, Nortel, dated November 23, 1998 at Exhibit C.

Forum is the Lucent/Philips receiver/repeater approach. Under this approach, TTY tones would be reliably transmitted as voice audio over the CDMA digital air interface by using a special TTY receiver/repeater function to correct for FER. The receiver/repeater function would recognize an incoming TTY signal and force the handset to transmit at full rate. The receiver/repeater capability will then be able to detect any frames that have been erased from a digital TTY transmission and recreate and retransmit those frames, thereby allowing an intelligible message to be received. Simulations performed by Lucent at a 2% FER level showed that the receiver/repeater reduced the character error rate from 17.6% to well under 1%.

Implementation of this approach requires that the receiver/repeater function be available in the speech decoder of both the handset and the network. At the network level, this can be accomplished by software changes in the speech decoder. Although a corresponding software modification must be made to the decoder at the handset level, the design of certain handsets, such as those manufactured by Qualcomm, require all software changes to be hard-wired into the handset chip. Such chip design changes understandably require longer lead times and greater scrutiny before they can be implemented.

In addition, an intelligent interface is required between the TTY device and the handset to provide RJ11 compatibility and dial tone. The intelligent interface must be accessed through each handset's audio port. As a result, each interface must be specific to each phone. Because the receiver/repeater approach is a very recent proposal, AirTouch is unaware of any vendor efforts to develop the requisite intelligent interface.

Lucent has stated that they plan to incorporate the receiver/repeater function into their CDMA network products during the second half of 1999. Lucent has also indicated that they are planning to provide additional information regarding this approach to other equipment manufacturers during the January 1999 TIA industry meetings. To date, no other manufacturers have indicated that they have firm plans to incorporate the receiver/repeater function into their CDMA products.

Understandably, AirTouch intends to thoroughly investigate all available alternatives for implementing digital TTY compatibility, considering all network impacts and costs, before selecting a particular solution.[15] Given the uncertainty associated with the available solutions and the potentially enormous costs involved, AirTouch is not able to commit to a specific solution at this time. As AirTouch learns of further developments in the relevant technologies and continues to progress in its commitment toward a specific solution for digital TTY compatibility, it will fully advise the Commission through the filing of quarterly reports as requested in the Waiver Order.

There are clearly no "off-the-shelf" solutions for TTY digital compatibility. Although AirTouch intends to support the research and development efforts of its vendors and others in the industry to create digital TTY solutions as quickly as possible, AirTouch cannot ensure that such activities will result in effective solutions. And it is certain that regardless of any actions that could be taken by carriers, there will be no solutions available on January 1, 1999. Accordingly, AirTouch will need a waiver of rule 20.18(c)

[15] Evaluation of the network impacts is all the more important in light of the impending Year 2000 deadline.

if the Commission determines not to extend the current suspension of enforcement of the rule. As the Commission considers whether to grant the waiver requests that will most certainly be filed by all CMRS operators, AirTouch urges the Commission to continue to take into consideration the standard enumerated in Section 255(c) of the Communications Act of 1934, as amended, in determining what steps are required from telecommunications carriers and manufacturers alike.[16]

II. When does the carrier intend to make this capability available to TTY users?

Because the TTY Forum has yet to release the results of its tests and because the proposed CDMA solutions are still in an early developmental stage, AirTouch is not yet able to select a specific path forward or timeframe for providing digital TTY capability. Instead, AirTouch will review and analyze the TTY Forum's test results as well as monitor the research and development being undertaken by CDMA equipment manufactures in order to choose the most expeditious and economically efficient means of implementing a digital TTY solution. Until a digital TTY solution has been implemented, AirTouch's subscribers can continue to rely on existing analog services to provide immediate access to wireless communications using TTY devices.

Pursuant to the Waiver Order, AirTouch intends to provide the Commission with quarterly reports, beginning from the date of waiver grant, regarding AirTouch's progress toward implementation.

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[16] Section 255(c) requires that "[a] provider of telecommunications service shall ensure that the service is accessible to and usable by individuals with disabilities, *if readily achievable.*" 47 U.S.C. § 255(c) (emphasis supplied).

III. What reasonable steps will the carrier take to address the consumer concerns referenced in the September 30 Order?

In an appendix to its September 30 Order, the Commission attached a list of functional characteristics that TTY consumers would like to see made available in any TTY digital compatibility solutions. Specifically, consumers have asked for:

1. a character error rate of less than 1% for stationary calls;
2. the ability of a TTY caller to visually monitor all aspects of call progress provided to the voice user including ring, busy and answered-in-voice;
3. a visual indication that a call has been disconnected;
4. volume control;
5. tactile (vibrating) ring signal indication;
6. transmission of TTY tones independent of the condition of the receiving modem such that a hearing person will know that the incoming call is from a TTY;
7. no requirement that a landline party's TTY require retrofitting;
8. a wireless party's TTY may require retrofitting or a new model TTY may be developed;
9. support of VCO and HCO where possible;
10. no reliance on reduction of throughput on Baudot to achieve compliance;
11. call information such as automatic number information ("ANI") and automatic location information ("ALI") should be provided for TTY calls;
12. supporting the embedding based of TTYs sold over the past 10 years; and
13. drive conditions must be supported consistent with analog cellular capabilities.

AirTouch's ability to address these concerns is highly, if not exclusively, dependent on its vendor's ability to address these concerns. For example, for the proposed CDMA data-

based solution, the TTY Forum hypothesizes that the IWF will support consumer concerns 1, 6, 7, 8, 10, 12, and 13.[17] However, it remains to be determined whether concerns 2, 3, and 11 can be addressed.[18] Concerns 4 and 5 will depend on the handset manufacturer and the data-based solution cannot technologically support concern 9.[19] AirTouch will continue to work with its vendors in an effort to ensure that as many of the consumer concerns are addressed as possible, if technically and economically feasible. In the interim, cellular carriers are able to offer these capabilities today through analog facilities. Thus, TTY users currently have an immediate wireless telephony option at their disposal.

CONCLUSION

Today, all wireless subscribers, including TTY users, have access to 911 services through existing, ubiquitous analog networks. Wireless carriers, equipment manufacturers and other interested stakeholders have been diligently working on approaches to provide the additional capability of TTY access to 911 services over digital networks. The problems are substantial and the proposed solutions complex. AirTouch is in the process of working with its vendors, individually and through the TTY Forum, to develop appropriate approaches to solve the TTY digital compatibility issue in a manner that is technologically effective and economically efficient. Although AirTouch will

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[17] *See* Wireless TTY Forum Workplan: TTY Access Over Digital Wireless Systems, Proposed Data-Based Solutions - Circuit Switched Matrix.

[18] *Id.*

[19] *Id.*

continue to urge its vendors to press ahead, no solution is currently available, nor is a solution likely to be made commercially available in the short-term. For these reasons, as well as the reasons enumerated above, AirTouch requests a wavier of Section 20.18(c) of the Commission's rules.

Respectfully submitted,

AirTouch Communications, Inc.

By: Pamela J. Riley /BMK
Pamela J. Riley
Steve Sharkey
David A. Gross

Joyce H. Jones

AirTouch Communications, Inc.
One California Street, 29th Floor
San Francisco, CA 94111

AirTouch Communications, Inc.
1818 N Street, NW
Washington, D.C. 20036
(202) 293-3800

December 4, 1998

Exhibit A

Licensee Name
AirTouch Cellular
AirTouch Cellular of Georgia
AirTouch Cellular of Kansas
AirTouch Communications, Inc.
Athens Cellular, Inc.
Boise City MSA Limited Partnership
Coconino, Arizona RSA Limited Partnership
Colorado RSA No. 3 Limited Partnership
Des Moines MSA General Partnership
Duluth MSA Limited Partnership
Grays Harbor - Mason Limited Partnership
Hamilton Cellular Telephone Company
Idaho RSA 3 Limited Partnership
Idaho RSA No. 1 Limited Partnership
Idaho RSA No. 2 Limited Partnership
Iowa RSA No. 10 General Partnership
Los Angeles SMSA Limited Partnership
Mineral RSA Limited Partnership
Modoc RSA Limited Partnership
Muskegon Cellular Partnership
NewPar
North Dakota RSA No. 3 Limited Partnership
Olympia Cellular Limited Partnership
Omaha Cellular Telephone Company
Oxnard/Ventura/Simi Limited Partnership
Redding MSA Limited Partnership
RSA 7 Limited Partnership
Sacramento-Valley Limited Partnership
Seattle SMSA Limited Partnership
Spokane MSA Limited Partnership
Springfield Cellular Telephone Company
Wasatch Utah RSA No. 2 Limited Partnership
Yuma, Arizona RSA Limited Partnership
Bay Area Cellular Telephone Company
CMT Partners
Napa Cellular Telephone Company
Cagal Cellular Communications Company
Salinas Cellular Telephone Company
St. Joseph CellTelCo

Exhibit B

NORTEL NETWORKS

Northern Telecom
1350 Treat Boulevard Suite 525
Walnut Creek CA 94596
Tel 925.296.2367
Fax 925.296.2362

www.nortelnetworks.com

John Williams
Vice President
Air Touch Global Account Group

November 25, 1998

Mr. Mike Polosky
AirTouch Cellular
2999 Oak Road, MS 650
Walnut Creek, CA 94596

Dear Mr. Polosky,

This letter is in response to your request for Nortel to provide support information for AirTouch to file a waiver request with the FCC regarding the E911/TTY rules. This is our draft response and is intended to give you insight into our direction on this issue. It is based on the best technical information we have available and upon what may be required by the FCC rule.

With regard to analogue calls through the Nortel equipment supplied to AirTouch, it is capable of transmitting 911 calls from people with speech or hearing disabilities through means other than the mobile handset, as an example through use of Text Telephone Devices (TTY).

With regard to digital calls through the Nortel equipment supplied to AirTouch, the equipment, in the short term, is likely to not be capable of transmitting the 911 call with sufficient error free text to elicit proper 911 response. Nortel believes the best long term solution for both analogue and digital calls from people with speech or hearing disabilities is to use the data path, and such equipment is anticipated to be generally available in 2001.

However if the 911 call content is corrupted by the speech or hearing disabled users consumer equipment, Nortel's system equipment will not be able to correct the errors. Nortel is aware that the vast majority of TTYs' are not designed to connect to wireless handsets, and such lack of good connection frequently corrupts messages before they reach the system networks.

I would appreciate the opportunity to further discuss this issue with you at your convenience.

Sincerely,

John Williams

Copy: Matt Desch
Charles Spann

How the world shares ideas.

Exhibit C

AIRTOUCH™
Cellular

Michael J. Polosky
Executive Vice President
Network & Systems Operations

AirTouch Cellular
2999 Oak Road, MS 650
Walnut Creek, CA 94596

Telephone: 510 210 3939
Facsimile: 510 210 3636

November 23, 1998

Via Fax to: Mr. James K. Brewington and Mr. Eric J. Wilson and
Certified Mail - Return Receipt Requested

Mr. Roger Manka, VP Carrier Sales
3Com
3800 Golf Road
Rolling Meadows, IL 60008

Re: TTY User Access to Wireless 911 Systems

Dear Mr. Manka,

Cellular providers are required by Federal Communications Commission order to be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, e.g., through the use of Text Telephone Devices (TTY). On November 13, 1998, the Commission issued an order suspending enforcement of this requirement for digital cellular systems until December 31, 1998. However, the Commission is requiring individual carriers desiring an extension of this suspension to file a request for waiver no later than December 4, 1998. Additionally, carriers will be required to file quarterly updates outlining progress made toward meeting the Commission's order.

Evaluation efforts by the Wireless TTY Forum indicate that TTY calls made over digital wireless systems remain highly unreliable in comparison to analog systems. There does not appear to be an existing voice-based solution which will allow the Baudot signal of a TTY device to pass through the vocoder of a digital air interface and achieve a character error rate comparable to analog cellular's rate of less than 1%. We are interested in exploring the use of CDMA circuit switched data as a medium to transmit TTY signals, as well as other solutions, in order to meet the FCC's requirement with acceptable reliability.

As you are aware, an Inter-working Facility (IWF) must be integrated into a CDMA network in order to enable circuit switched data transmission. 3Com is the sole provider of IWFs deployed or soon to be deployed in all three configurations of AirTouch cellular networks (Lucent, Motorola, Nortel). AirTouch currently believes that the modem type required to support TTY devices (modem type V.18) is not supported by the IWF (3Com's Total Control Platform).

In order to achieve the capability to transmit TTY signaling via CDMA circuit switched data, and to assist AirTouch in filing a waiver request, we need your immediate and continuing assistance. We therefore ask that you provide us with a written response by December 3, 1998 regarding the support of type V.18 modems by the Total Control Platform. Please provide an expected date that the Total Control Platform will be capable of supporting this modem type and the method that 3Com will employ to add this capability. Additionally, until such time that the Total Control Platform is capable of supporting V.18 type modems, we request a written monthly update be provided to AirTouch outlining progress made toward achieving this capability.

Sincerely yours,

Michael J. Polosky
Executive Vice President
AirTouch Cellular

cc: Doug Myers (by fax and e-mail)

AIRTOUCH™
Cellular

Michael J. Polosky
Executive Vice President
Network & Systems Operations

AirTouch Cellular
2999 Oak Road, MS 650
Walnut Creek, CA 94596

Telephone: 510 210 3939
Facsimile: 510 210 3636

November 24, 1998

Via Fax to: Mr. Eugene A. Delaney and Mr. Mike Barlow and
Certified Mail - Return Receipt Requested

Mr. Eugene A. Delaney, Corp. Vice President
Motorola
1501 W. Shure Drive
Arlington Heights, IL 60004-1497

Mr. Mike Barlow, Area Operations Manager
Motorola
2121 Palomar Road, Suite 301
Carlsbad, CA 92009

Re: TTY User Access to Wireless 911 Systems

Dear Mr. Delaney,

Cellular providers are required by Federal Communications Commission order to be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, e.g., through the use of Text Telephone Devices (TTY). On November 13, 1998, the Commission issued an order suspending enforcement of this requirement for digital cellular systems until December 31, 1998. However, the Commission is requiring individual carriers desiring an extension of this suspension to file a request for waiver no later than December 4, 1998. Additionally, carriers will be required to file quarterly updates outlining progress made toward meeting the Commission's order.

In order to achieve the capability to transmit TTY signaling via CDMA, and to assist AirTouch in filing a waiver request, we need your immediate and continuing assistance. We therefore ask that you provide us with a written response by December 3, 1998 regarding the support of TTY signaling by Motorola's CDMA cellular equipment. Please provide an expected date that the digital cellular network will be capable of supporting TTY devices. Additionally, until such time that the digital cellular network is capable of supporting TTY devices, we request a written monthly update be provided to AirTouch outlining progress made toward achieving this capability.

Sincerely yours,

PER TIS FOR MJP

Michael J. Polosky
Executive Vice President
AirTouch Cellular

AIRTOUCH™
Cellular

Michael J. Polosky
Executive Vice President
Network & Systems Operations

AirTouch Cellular
2999 Oak Road, MS 650
Walnut Creek, CA 94596

Telephone: 510 210 3939
Facsimile: 510 210 3636

November 24, 1998

Via Fax to: Mr. James K. Brewington and Mr. Eric J. Wilson and
Certified Mail - Return Receipt Requested

Mr. James K. Brewington, Group President
Lucent Technologies
67 Whippany Road, room 4A-337
Whippany, NJ 07981-0903

Mr. Eric J. Wilson, Executive Director
Lucent Technologies
2300 Camino Ramon
San Ramon, CA 94583

Re: TTY User Access to Wireless 911 Systems

Dear Mr. Brewington,

Cellular providers are required by Federal Communications Commission order to be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, e.g., through the use of Text Telephone Devices (TTY). On November 13, 1998, the Commission issued an order suspending enforcement of this requirement for digital cellular systems until December 31, 1998. However, the Commission is requiring individual carriers desiring an extension of this suspension to file a request for waiver no later than December 4, 1998. Additionally, carriers will be required to file quarterly updates outlining progress made toward meeting the Commission's order.

In order to achieve the capability to transmit TTY signaling via CDMA, and to assist AirTouch in filing a waiver request, we need your immediate and continuing assistance. We therefore ask that you provide us with a written response by December 3, 1998 regarding the support of TTY signaling by Lucent's CDMA cellular equipment. Please provide an expected date that the digital cellular network will be capable of supporting TTY devices. Additionally, until such time that the digital cellular network is capable of supporting TTY devices, we request a written monthly update be provided to AirTouch outlining progress made toward achieving this capability.

Sincerely yours,

Michael J. Polosky
Executive Vice President
AirTouch Cellular

AIRTOUCH™
Cellular

Michael J. Polosky
Executive Vice President
Network & Systems Operations

AirTouch Cellular
2999 Oak Road, MS 650
Walnut Creek, CA 94596

Telephone: 510 210 3939
Facsimile: 510 210 3636

November 24, 1998

Via Fax to: Mr. Matthew J. Desch and Mr. John Williams and
Certified Mail - Return Receipt Requested

Mr. Matthew J. Desch, President
Nortel - Northern Telecom
2221 Lakeside Blvd.
Richardson, TX 75082-4399

Mr. John Williams, Vice President
Nortel - Northern Telecom
1350 Treat Blvd., Suite 525
Walnut Creek, CA 94596

Re: TTY User Access to Wireless 911 Systems

Dear Mr. Desch,

Cellular providers are required by Federal Communications Commission order to be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, e.g., through the use of Text Telephone Devices (TTY). On November 13, 1998, the Commission issued an order suspending enforcement of this requirement for digital cellular systems until December 31, 1998. However, the Commission is requiring individual carriers desiring an extension of this suspension to file a request for waiver no later than December 4, 1998. Additionally, carriers will be required to file quarterly updates outlining progress made toward meeting the Commission's order.

In order to achieve the capability to transmit TTY signaling via CDMA, and to assist AirTouch in filing a waiver request, we need your immediate and continuing assistance. We therefore ask that you provide us with a written response by December 3, 1998 regarding the support of TTY signaling by Nortel's CDMA cellular equipment. Please provide an expected date that the digital cellular network will be capable of supporting TTY devices. Additionally, until such time that the digital cellular network is capable of supporting TTY devices, we request a written monthly update be provided to AirTouch outlining progress made toward achieving this capability.

Sincerely yours,

PER MJP

Michael J. Polosky
Executive Vice President
AirTouch Cellular